

# Gain in 62 GeV run

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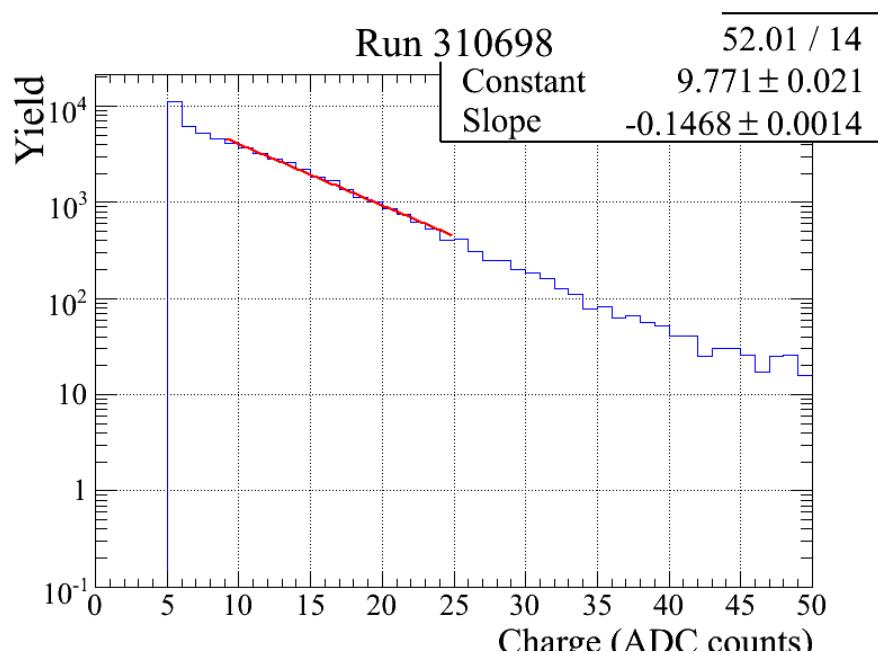
Tokyo University

# Outline

1. Gain Calculation
2. Stable sectors and unstable sectors
3. Beginning of 62 GeV run
4. End of 62 GeV run
5. Summary

# Calculation of gain using scintillation

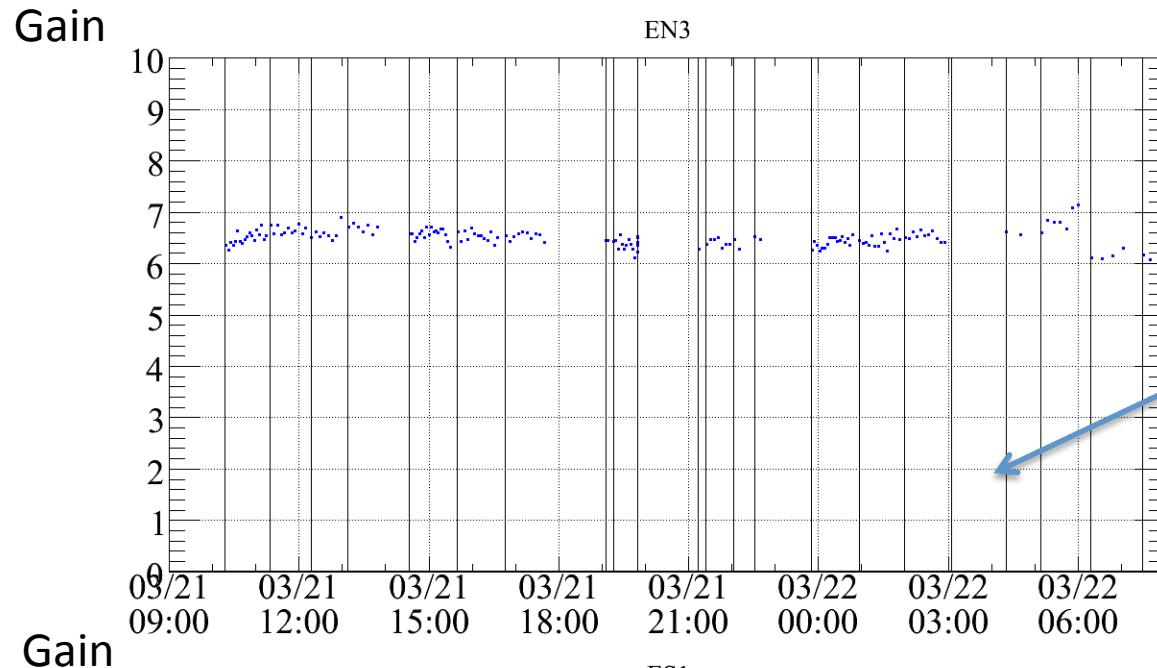
- Data: 62 GeV compactCNT
- Select events with ntrks<5
- Use single pads far from Central Arm tracks
  - $\text{abs}(\text{hbddz}) \geq 5\text{cm}$ ,  $\text{abs}(\text{hbddphi}) \geq 50\text{mrad}$



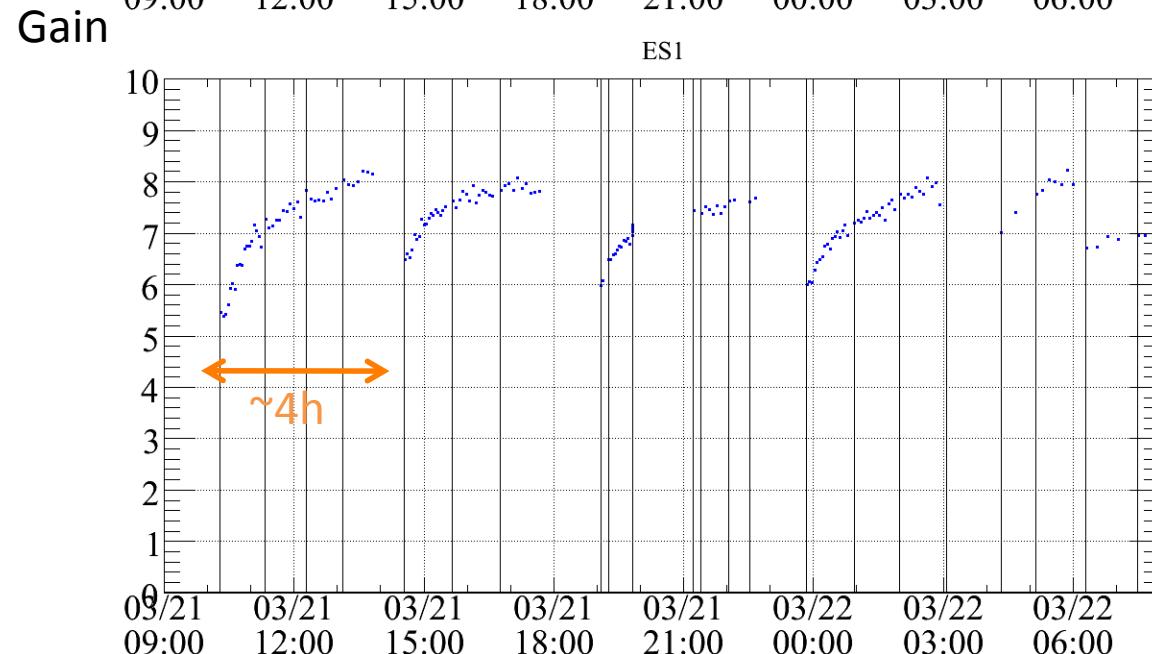
Fit with exponential function

$$Gain = \frac{1}{Slope}$$

# A stable sector and an unstable sector

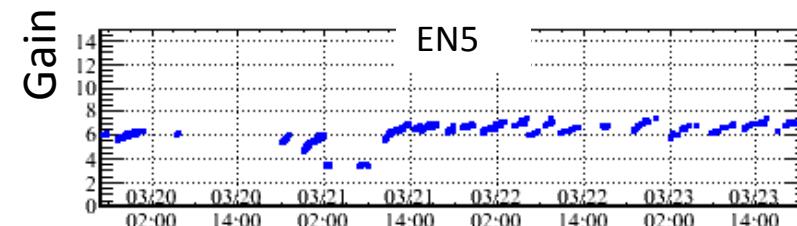
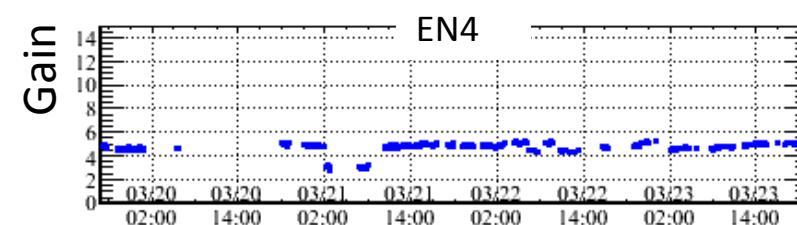
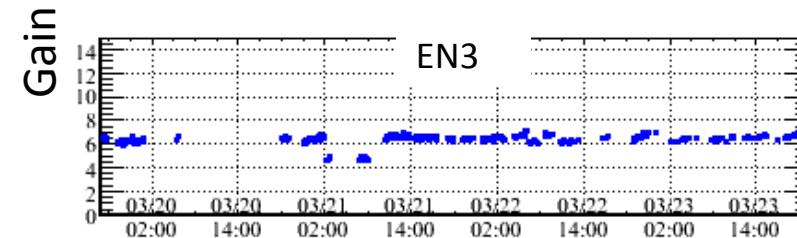
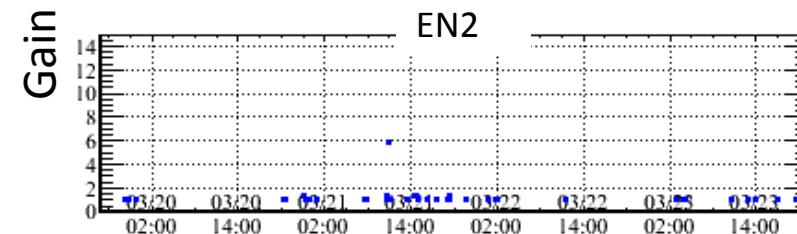
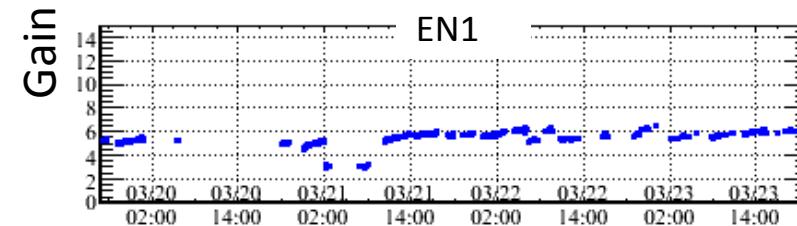
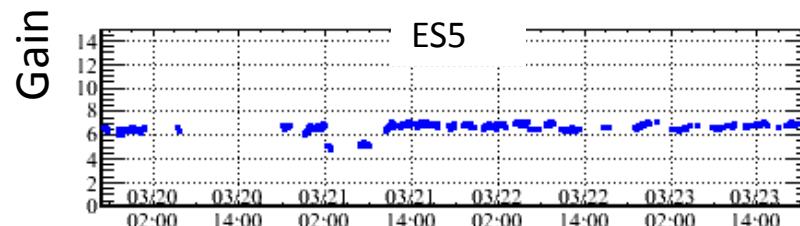
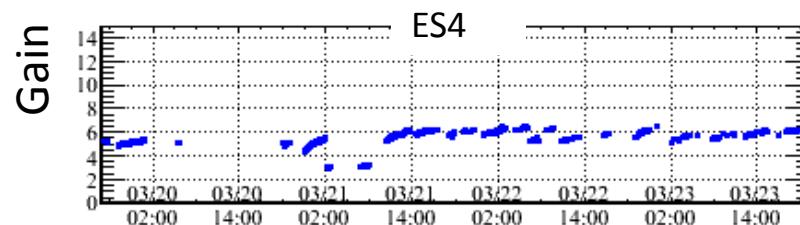
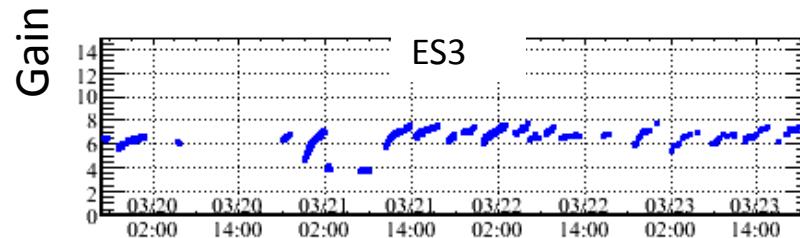
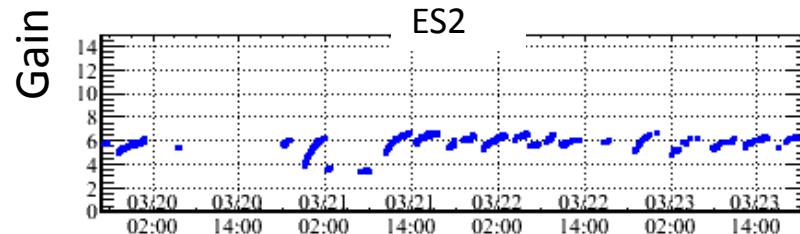
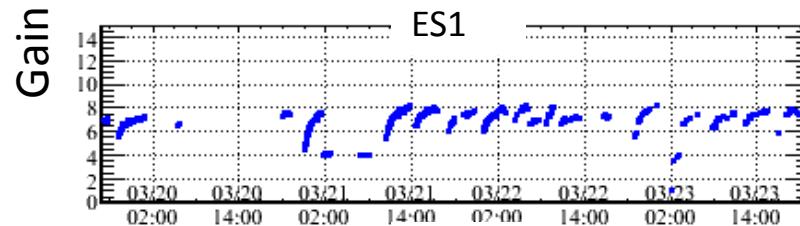


- Blue points show gain in one segment
- A solid vertical line shows the beginning of a run

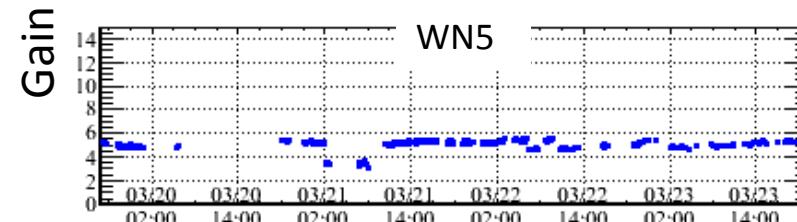
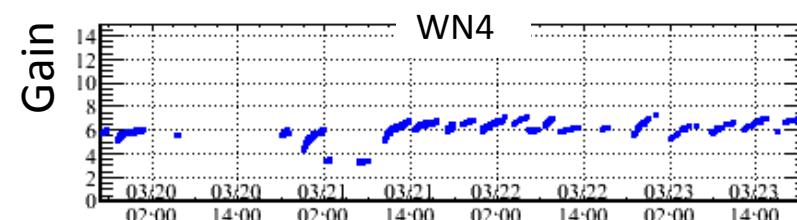
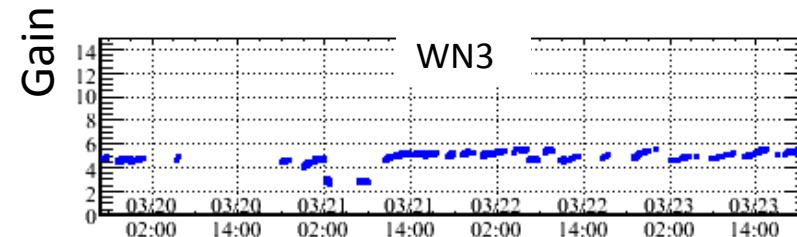
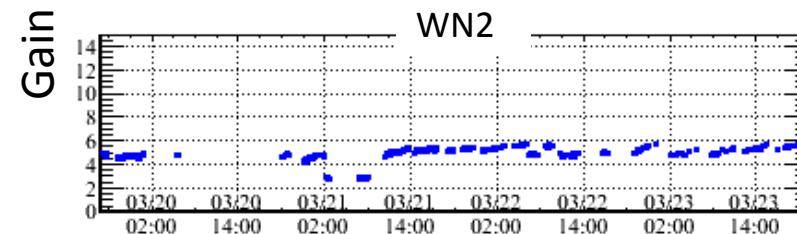
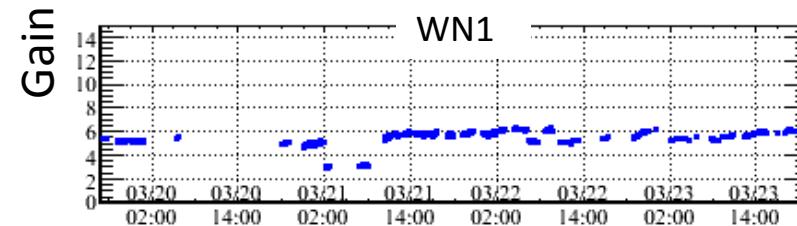
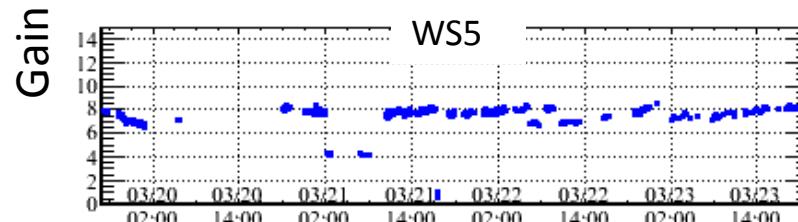
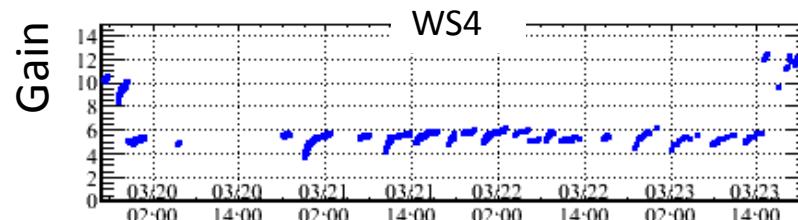
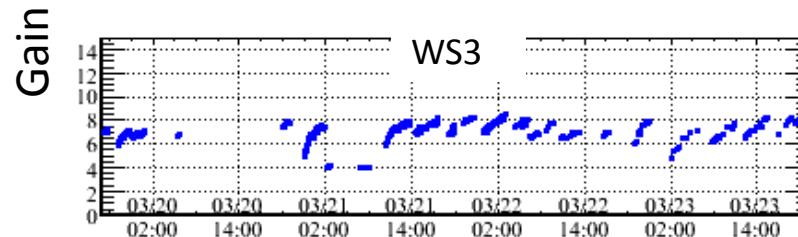
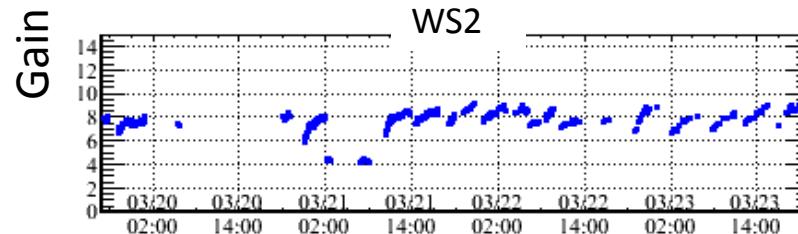
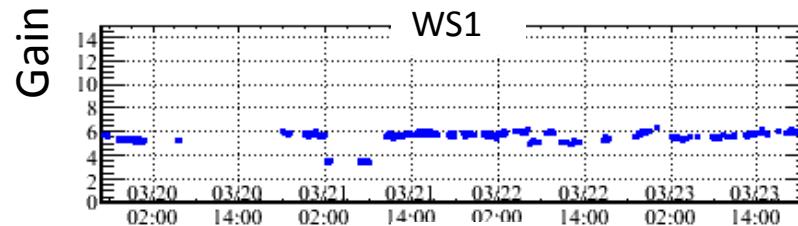


Gain rises during run.  
In the worst case, ~30%

# 3/19-3/23 beginning of 62GeV (East)

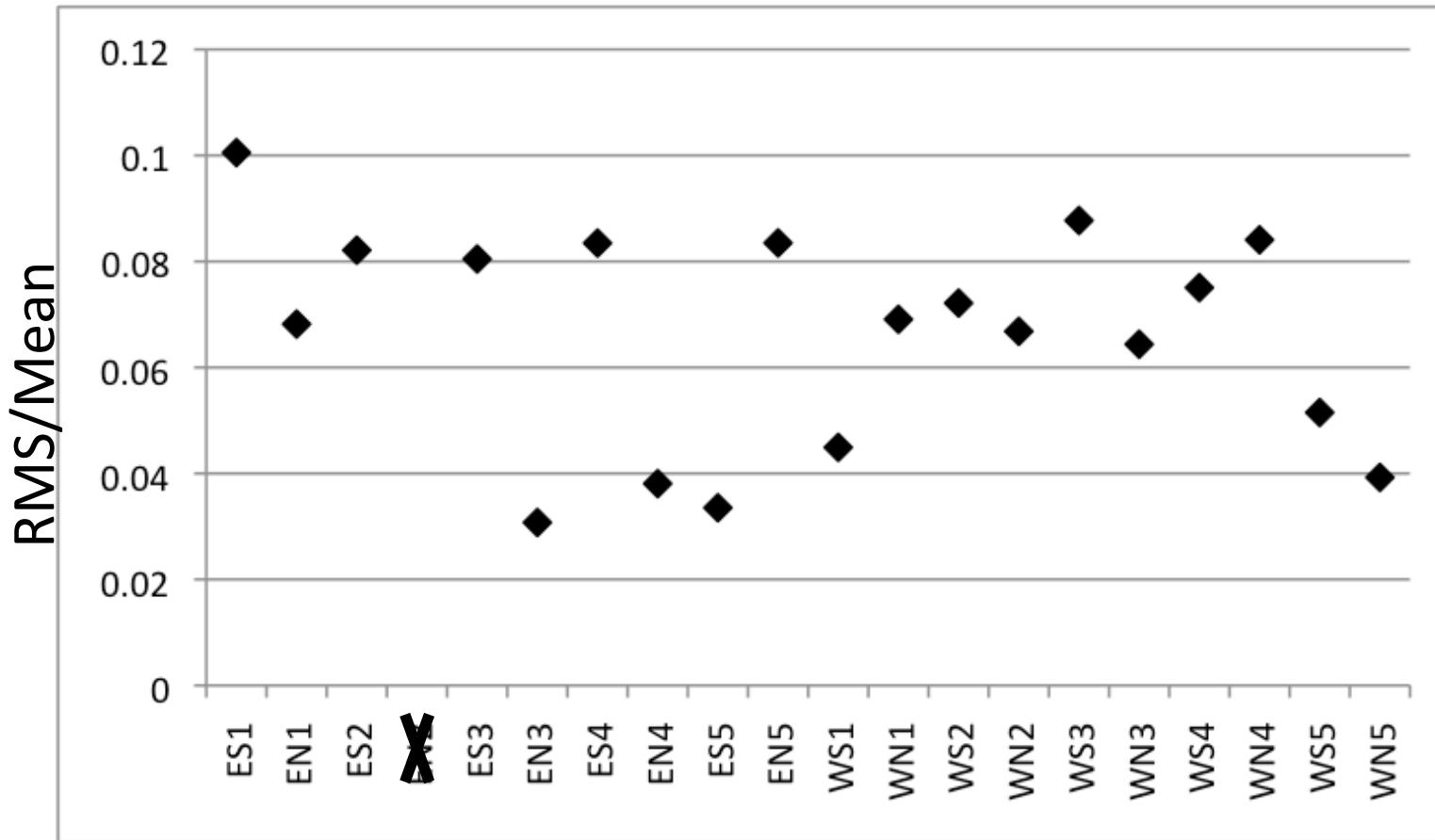


# 3/19-3/23 beginning of 62GeV (West)

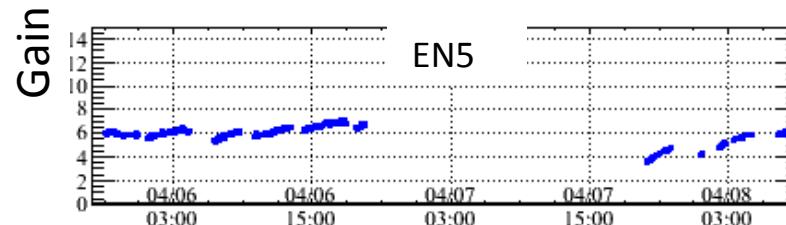
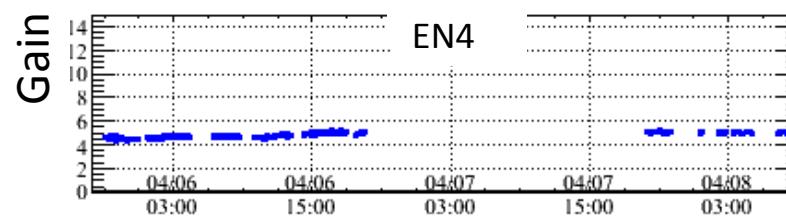
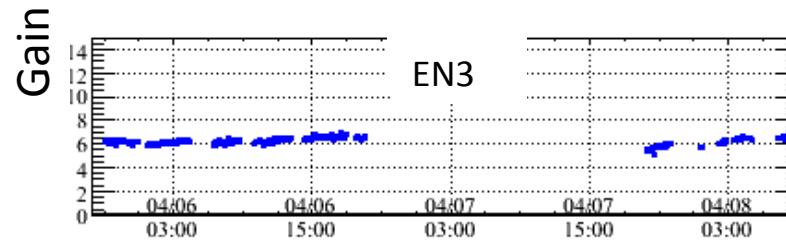
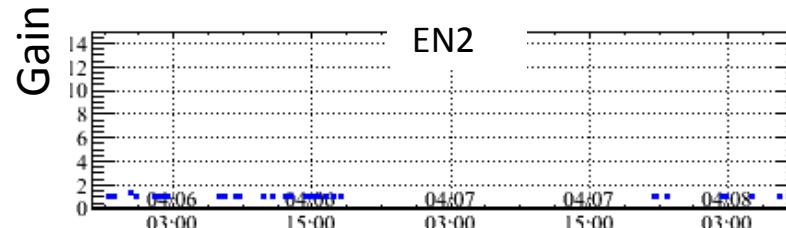
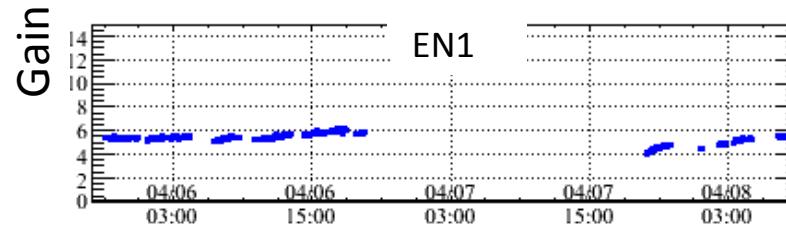
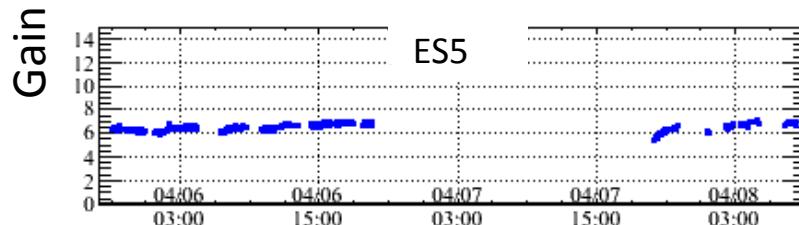
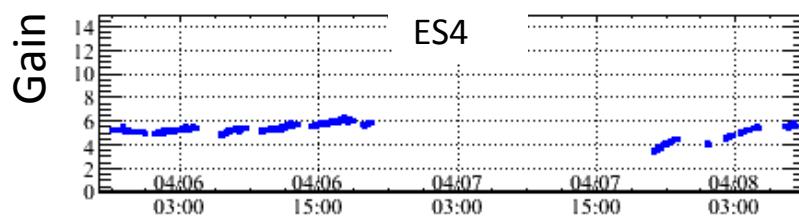
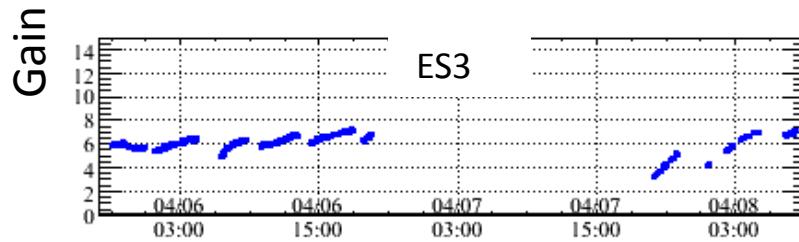
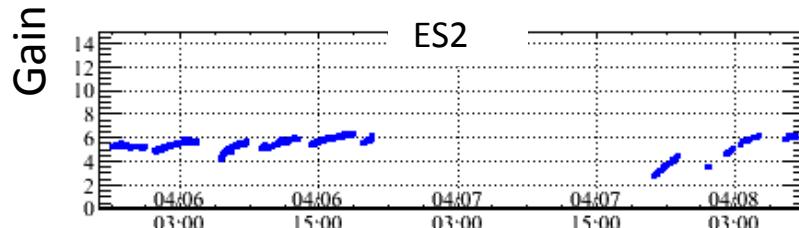
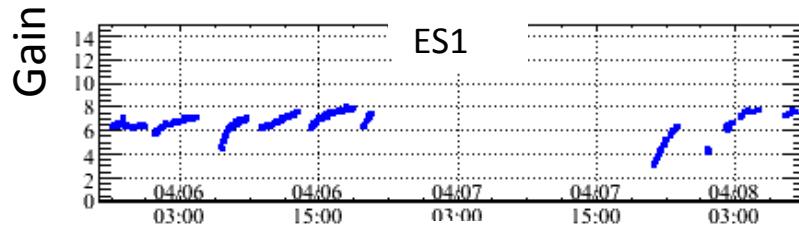


# RMS/Mean at the beginning of 62 GeV run

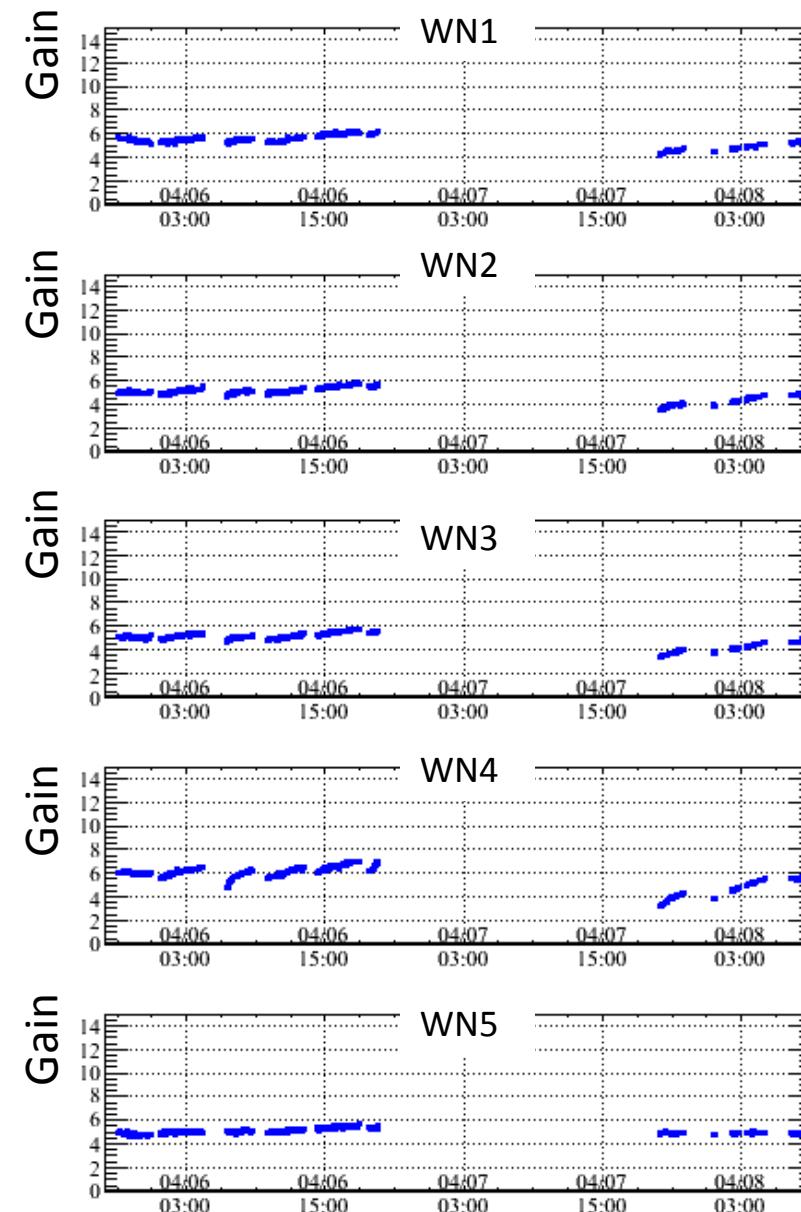
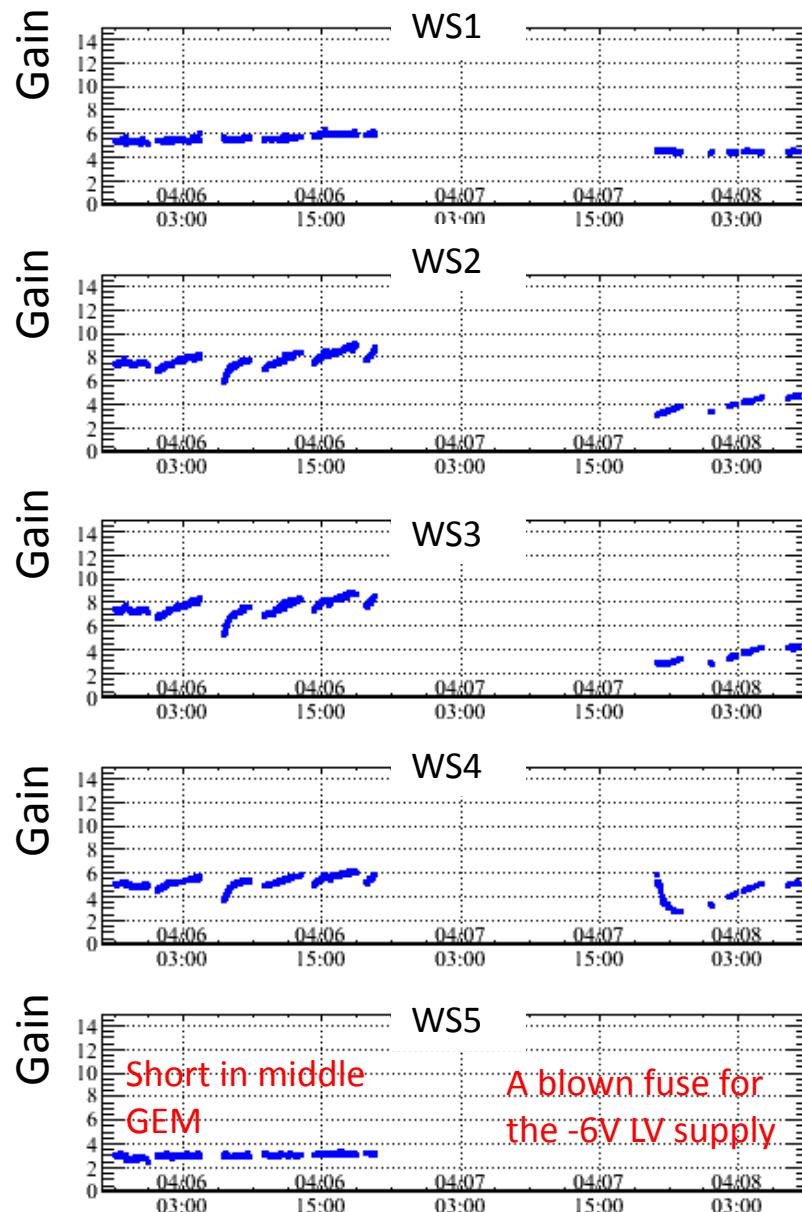
- Calculate RMS/Mean of gain for each sector
- Some segments are excluded
  - gain<2 in ES1, gain>8 in WS4, gain < 2 in WS5
  - March 21 01:39 – March 21 08:09 (HV was lowered)
- EN3, EN4, ES5, WS5 and WN5 are stable



# 4/6-4/8 end of 62GeV (East)

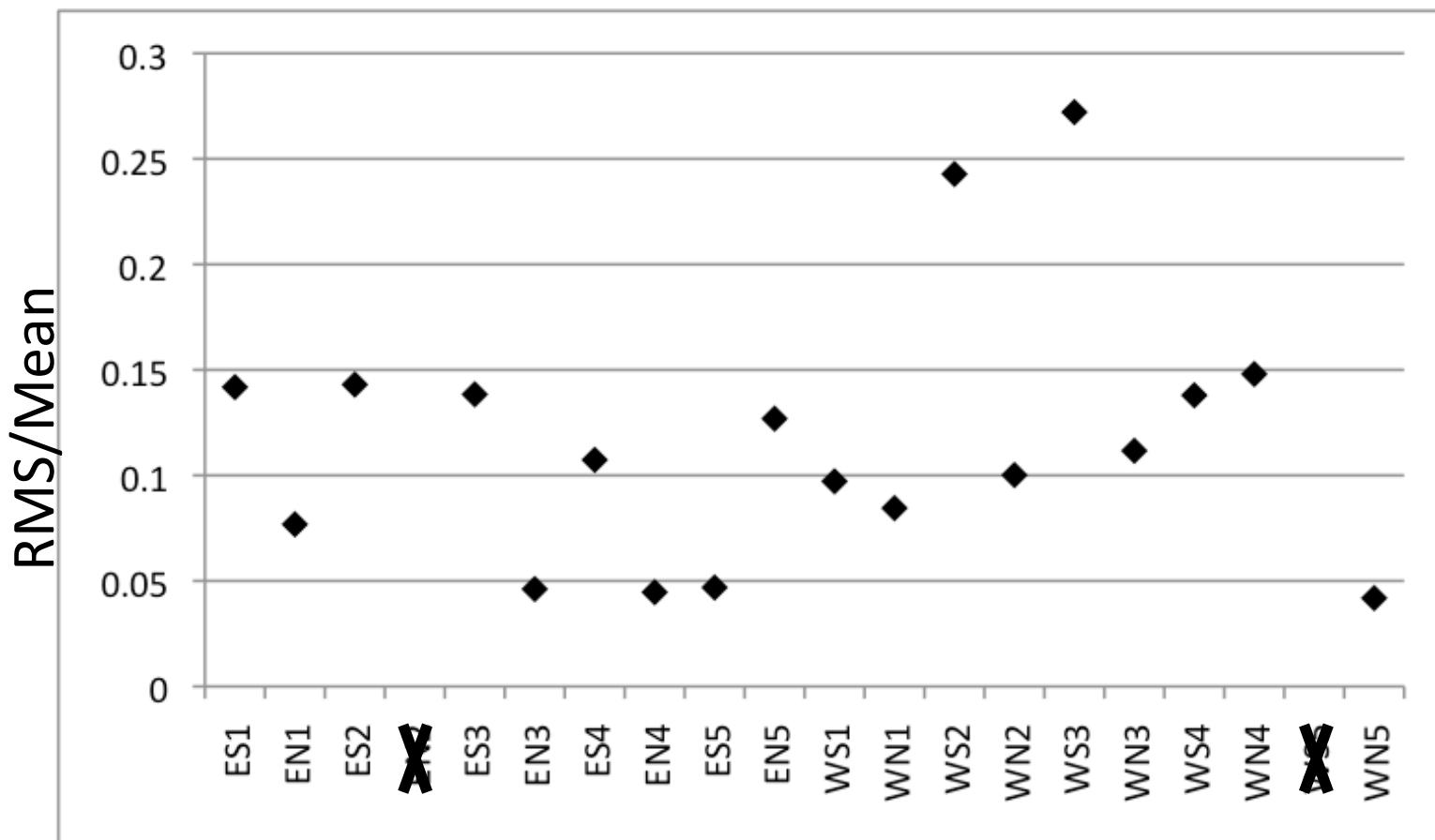


# 4/6-4/8 end of 62GeV (West)



# RMS/Mean at the end of 62 GeV run

- Calculate RMS/Mean of gain for each sector
- EN3, EN4, ES5 and WN5 are also stable at the beginning



# Summary

- Some sectors have unstable gain.
  - Charge-up effect?
- Currently, a single value is used in gain calibration for each run. Need to use multiple values?

# **BACKUP**

# RMS/Mean at the end of 62 GeV run

- Before April 6 19:00

